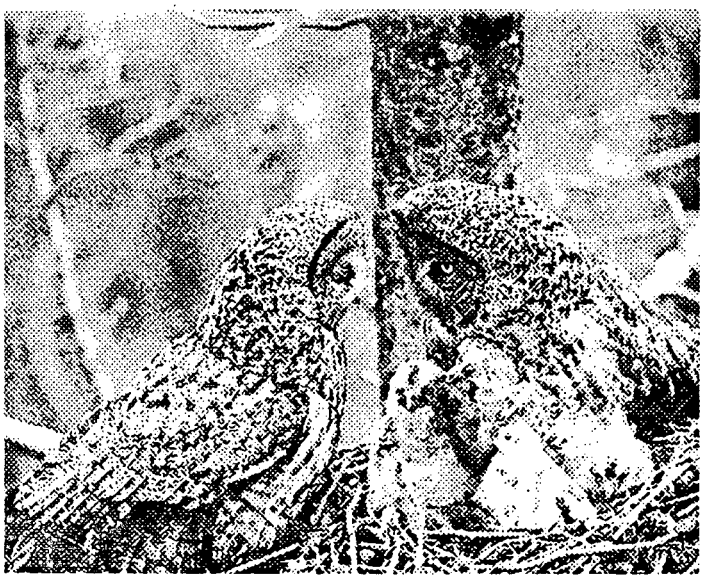
UNCATALOGED
UNC0183
Environmental restoration program, monthly report for
December 1992

#00051698

1F100

# Environmental Restoration Program



## Monthly Report for December 1992

Rocky Flats Office

Reviewed for Classification/UCNI
BY George H. Setlock
DATE 1/15/93 UNU

January 20, 1993

ADMIN RECORD

DOCUMENT CLASSIFICATION
REVIEW WAIVER PER
CLASSIFICATION OFFICE

A-SW-001417

# TABLE OF CONTENTS

# EXECUTIVE SUMMARY

## SIGNIFICANT ACTIVITIES AND ACHIEVEMENTS FOR DECEMBER 1992

In a letter dated December 1, 1992, DOE requested a 90-day extension for the OU 1 Draft and Final Corrective Measures Study/Feasibility Study (CMS/FS) Reports. The Environmental Protection Agency (EPA) and the Colorado Department of Health (CDH) granted a 45-day extension on December 9, 1992, and after a December 18, 1992, meeting with DOE and subsequent conversations, EPA and CDH granted the full 90-day extension.

The 3-month extension is based on DOE's commitment to develop an exposure scenario that considers domestic use of ground water, including ingestion and dermal contact pathways in the Baseline Risk Assessment (BRA).

The OU 1 Draft CMS/FS Report that was due on March 31, 1993, is now due on June 29, 1993. The Final CMS/FS Report and the Draft Proposed Plan (PP) that were due September 27, 1993, are now due December 23, 1993.

OU 1 Technical Memorandum (TM) #10, Remedial Action Objectives, will be revised accordingly and delivered to EPA and CDH in mid-January. This TM establishes remedial action objectives, preliminary remediation goals, and identifies applicable or relevant and appropriate requirements (ARARs). TM #10 is a key landmark in the development of the CMS/FS.

The OU 4 surficial soil sampling program has been completed outside the "radiation controlled area" (RCA). A total of 15 surficial soil samples were collected; 5 in the Buffer Zone and 10 in the Protected Area (PA). The radiological/Field Instrument for Detection of Low-Energy Radiation (FIDLER) survey in the PA is approximately 95 percent complete.

OU 4 drilling activities began in the PA on December 14, 1992. Ground water was detected and bedrock was encountered. Two samples were collected for analytical purposes. The staking of borehole locations in the Buffer Zone was initiated on December 18, 1992. Two piezometer boreholes were drilled and completed in the Buffer Zone. One of the objectives of drilling is to locate/identify the Arapaho "Sands" potentially below the Arapaho "Claystone" as a potential migratory pathway for contaminants. This geologic unit is expected to be 45 to 60 feet below grade.

In OU 5, the geophysical survey at Individual Hazardous Substance Site (IHSS) 133 was completed and IHSS 115 geophysical data was incorporated into Draft TM #3, Surface Soil Sampling at IHSS 115. The Draft TM # 3 was delivered to EPA and CDH on December 4, 1992. Approval of the TM by EPA and CDH was received on December 28, 1992.

In OU 6, 15 borings were completed, 30 composite soil samples were collected, two monitoring wells were installed, and Soil Classification Surveys were completed in IHSS 165, 167.3, and 215.1.

The OU 8 Final Phase I RFI/RI Work Plan was delivered to the regulatory agencies on December 1, 1992, the extended IAG milestone date. This milestone represents a significant achievement in that it is the last RFI/RI Work Plan scheduled in the IAG.

The revised OU 12 Final Phase I RFI/RI Work Plan was submitted to EPA and CDH on December 18, 1992. EPA and CDH are scheduled to grant final approval for the Work Plan in January 1993.

## PROBLEMS AND PROGRAMMATIC ISSUES

### Procurement and Quality Action Team Status

The first meeting of the Quality Action Team (QAT) Procurement working group was held on December 2, 1992. The purpose of the working group is to address the recommendations made by the QAT. The outcome of the December 2, 1992, meeting was the development of an Action Plan that identified improvement actions and the organization responsible for accomplishing the action. The working group will track progress on the initial QAT recommendations and identify other issues that might affect the effectiveness of the EG&G subcontracting system.

As recommended by the QAT, work on the Architectural and Engineering (A&E) MTS was reinitiated in December 1992 with a meeting between EG&G Environmental Restoration Management (ERM) and Procurement personnel. It was agreed to rewrite the original Commerce Business Daily (CBD) announcement and proceed with a re-advertisement of the subcontract requirements. The current schedule indicates that an award is possible by April 15, 1993.

In an attempt to carry out the intent of the QAT, the Procurement MTS training presentation was presented to the staff of the EG&G Assistant Manager for Administration on December 3, 1992. The presentation had been previously presented to 60+ EG&G technical personnel in Environmental Restoration. The primary goal of the training is to familiarize key DOE and ERM managers and technical staff with the advantages, limitations, and effective use of the MTS subcontracting vehicle.

The E&WM MTS was awarded in August 1992. To date, 14 task orders worth approximately $4.50 million have been awarded. Another 12 purchase requests (PRs) worth approximately $5.35 million are in the Procurement pre-award process.

### Other

An acid tank overflow occurred in Building 891. On December 21, 1992, a hydrochloric acid shipment arrived by truck at Building 891 and the truck operator began pumping the acid from the truck into the tank. A visual inspection of the tank and the tanker was conducted by an employee who smelled an odor, and it was discovered that the acid tank was overflowing into the containment area. The RFP Fire Department was called, and the acid was pumped to tank 210. The remaining acid was neutralized by the addition of sodium bicarbonate and oil dry added to liquid for later disposal into waste drums. The Fire Department estimated the total amount collected in the concrete berm beneath the tank to be 2,200 gallons. Approximately 50 gallons of acid overflowed into the containment area and was neutralized and placed into

four drums. The acid tank has been repiped to prevent this type of occurrence in the future. No injuries were sustained to personnel during this incident.

In OU 1, a posting of a plutonium "hot spot" was completed. This hot spot was not detected during the remedial investigation (RI) field work because of the small, discrete area contaminated. It was detected during a random survey of the 881 Hillside during construction work. A plan is being finalized to conduct further surveys to verify that no other hot spots exist on the hillside. The field work will be conducted as soon as favorable weather conditions allow for a plutonium investigation (instrumentation is inaccurate in wet/snow conditions). The survey that will be conducted is expected to require approximately 220 hours of support from the RFP Health and Safety (H&S) and Radiological Engineering groups.

A formal request for an extension from the regulatory agencies on the OU 2 Draft Phase II RFI/RI Report is being prepared by DOE because the issue of including the Bedrock Field program into the Draft or Final Report has not been resolved.

Surficial soil sample collection in OU 2 for the Human Health Risk Assessment (HHRA) has become critical path for the Draft Phase II Report. Procurement is expediting a subcontract to alleviate potential schedule impacts.

OU 3 offsite landowners are still being contacted for surface soil sampling sites. Several landowners have denied access to their property. When access is denied, it is necessary to identify a new sampling location and to contact a new landowner for access to that property. Significant schedule impacts have resulted from the slow pace of obtaining Use Agreements from offsite landowners. Impacts to future IAG milestones and new schedules are being evaluated.

DOE and the regulatory agencies have informally discussed the possibility of integrating characterization activities within the Industrial Area (IA). This concept would impact scheduled field work activities in OUs 8, 9, 10, 12, 13, and 14.

## NEAR-TERM IAG MILESTONES

| OU | Milestone Description | Due to EPA/CDH |
|---|---|---|
| 02 | Submit Subsurface Final IM/IRA Test Plan 1 | Jan 12, 1993 |
| Sitewide | Annual Treatability Study Report | Mar 8, 1993 |
| 02 | Draft Phase II RFI/RI Report | Mar 12, 1993 |
| 01 | Draft CMS/FS Report | Mar 31, 1993 ** |
| 01 | Submit Final Phase III RFI/RI Report | April 2, 1993 |

***EPA and CDH approved an extension on the OU 1 Draft CMS/FS to June 29, 1993.*

# SECTION 1. INTRODUCTION

This monthly status report presents the current status and technical achievements of the Rocky Flats Environmental Restoration Program for December 1992. This program implements the Interagency Agreement (IAG) among the U.S. Department of Energy (DOE), the U.S. Environmental Protection Agency (EPA), and the State of Colorado to investigate, assess, and remediate, where necessary, contaminated areas at or adjacent to DOE's Rocky Flats Plant (RFP) in Golden, Colorado. This agreement was signed on January 22, 1991. The work is being performed for DOE by EG&G Rocky Flats, Inc.

Technical progress, schedule status, and milestone status for each Operable Unit (OU), as well as other program activities, are presented in Section 2.0. Section 3.0 contains the schedules for routine environmental sampling as required by Paragraph 210 of the Interagency Agreement. Section 4.0 contains a list which identifies the contractors and subcontractors performing work on the program as required by Paragraph 13 of the IAG.

# SECTION 2. PROJECT STATUS

## 2.1 OU 1 - 881 HILLSIDE AREA

The alluvial ground water at the 881 Hillside Area, located north of Woman Creek in the southeast section of RFP, was contaminated in the 1960s and 1970s with solvents and radionuclides. The area is almost 2 miles from the eastern, outer edge of the plant's Buffer Zone at Indiana Street. The various Individual Hazardous Substance Sites (IHSS) that make up OU 1 are being investigated and treated as high-priority sites because of elevated concentrations of organic compounds in the near-surface ground water and the proximity of the contamination to a drainage system leading to an offsite drinking water supply. The selected Interim Remedial Action (IRA) at OU 1 involved construction of an underground drainage system called a French drain that intercepts and contains near-surface ground water flowing from the OU 1 area. The near-surface water is treated at the 891 treatment facility, designed for this purpose, and released onsite into the South Interceptor Ditch alongside Woman Creek. IRA construction was completed in April 1992. The Remedial Investigation and Feasibility Study (RI/FS) to determine the final remedial action are continuing in parallel with the IRA.

### 2.1.1 OU 1 ASSESSMENT

**Scope of Work Changes This Period**

Major portions of the risk assessment must be redone.

**Technical Approach Changes This Period**

Agreement has been reached with DOE and the regulatory agencies to include the ingestion of ground water as a potential exposure pathway.

**IAG Milestone Accomplishments**

| | |
|---|---|
| Submit Draft Phase III RFI/RI Work Plan | 06 Feb 90 |
| Submit Final Phase III RFI/RI Work Plan | 31 Oct 90 |
| Submit Draft Phase III RFI/RI Report | 28 Oct 92 |

**December Work Activity Status**

In October 1992, DOE petitioned the regulatory agencies for a 90-day extension on all deliverables. Only the Final RCRA Facilities Investigation/Remedial Investigation (RFI/RI) Report was granted a 90-day extension by the regulatory agencies. A second petition for a 90-day extension to perform work on the FS was sent to the regulatory agencies. During the week ending December 18, 1992, a response from the regulatory agencies granted a 45-day extension, rather than the 90 days requested. It was decided to dispute this decision, and a letter requesting dispute resolution was informally delivered to the regulatory agencies. On December 17, 1992, an informal discussion among DOE and the regulatory agencies was held to resolve this dispute and to avoid a formal request for dispute resolution.

The informal discussion led to the following resolutions:

1) The regulatory agencies concurred that DOE's analysis was correct. However, there is a small possibility that saturated

conditions sufficient to supply water for domestic use could return at some time in the future.

2) DOE will provide a worst-case analysis in the Baseline Risk Assessment (BRA) that considers ingestion and dermal contact with contaminated ground water. This case is provided in response to requests from the regulatory agencies.

3) The regulatory agencies agreed that the worst-case shall not be used for determining remedial action requirements, but rather ground water cleanup goals will be set on applicable or relevant and appropriate requirements (ARARs).

4) The regulatory agencies agreed that the 881 Hillside compromise does not preclude DOE from advancing the same arguments (or similar rigorous pathway analysis) on other OUs.

5) The regulatory agencies agreed to grant DOE's request for a 90-day schedule extension on all downstream milestones. The new milestone date for the Draft and Final CMS/FS reports are now June 29, 1993, and December 23, 1993, respectively.

In addition to the worst-case analysis, an analysis has already been performed to permit presentation of a more reasonable conservative case for comparison. The resolutions appear to be a reasonable compromise. They maintain the verity of the technical analysis.

Technical Memorandum (TM) #10, Remedial Action Objectives, will be revised so as to adhere to the aforementioned resolutions and delivered to the regulatory agencies in mid-January. This TM establishes remedial action objectives, preliminary remediation goals, and identifies ARARs. TM #10 is a key landmark in the development of the CMS/FS.

On November 30, 1992, a posting of a plutonium (Pu) "hot spot" was completed. This hot spot was not detected during the RI field work because of the small, discrete area contaminated. It was detected during a random survey of the 881 Hillside during construction work. A plan is being finalized to conduct further surveys to verify that no other hot spots exist on the hillside. The field work will be conducted as soon as favorable weather conditions allow for a Pu investigation (instrumentation is inaccurate in wet/snow conditions). The survey is expected to require approximately 220 hours of support from the RFP Health and Safety (H&S) and Radiological Engineering Departments.

An acid tank overflow occurred in Building 891. On December 21, 1992, a hydrochloric acid shipment arrived by truck at Building 891, and the truck operator began pumping the acid from the truck into the tank. A visual inspection of

the tank and the tanker was conducted by an employee who smelled an odor, and it was discovered that the acid tank was overflowing into the concrete containment area. The Fire Department was called, and the acid was pumped to Tank 210. The remaining acid was neutralized by the addition of sodium bicarbonate and oil dry added to liquid for later disposal into waste drums. The Fire Department estimated the total amount collected in the concrete berm beneath the tank to be 2,200 gallons. Approximately 50 gallons of acid overflowed into the containment area and was neutralized and placed into four drums. The acid tank has been repiped to prevent this type of occurrence in the future. No injuries were sustained to personnel during this incident. All procedures as written were properly followed by the building residents. A plan will be determined for the waste drums.

CDH will conduct an inspection of Building 891. The inspection should be conducted in accordance with the Hazardous Waste Requirements Manual, Sec. 22.0, "Interaction with Regulatory Agencies."

**Planned Work for January**

The submittal of TM #10, *Remedial Action Objectives*.

**Problems**

Weather conditions continue to cause postponement of the radionuclide survey of hot spots on the 881 Hillside.

**Open Items**

None

## 2.1.2 OU 1 REMEDIATION

**Scope of Work Changes This Period**

None

**Technical Approach Changes This Period**

None

**IAG Milestone Accomplishments**

| | |
|---|---|
| Submit Draft Proposed IM/IRA Decision Document | 18 Sep 89 |
| Submit Proposed IM/IRA Decision Document | 06 Oct 89 |
| Submit Final IM/IRA Decision Document | 05 Jan 90 |
| Begin Phase I-A IM/IRA Construction | 15 Jan 90 |
| Restart Phase I-A IM/IRA Construction (after shutdown) | 20 Jun 90 |
| Begin Phase I-B IM/IRA Construction (ahead of schedule) | 28 Sep 90 |

| | |
|---|---|
| Submit IM/IRA Implementation Document | 22 Feb 91 |
| Begin Phase II-A IM/IRA Construction | 01 Apr 91 |
| Begin IM/IRA Testing | 05 Aug 91 |
| Begin Phase II-B IM/IRA Construction | 03 Sep 91 |
| Complete IM/IRA Construction (Bldg. 891) | 02 Mar 92 |
| Complete IM/IRA Construction (French drain) | 13 Apr 92 |

## December Work Activity Status

Recent snow melt has increased the flow rate to the French drain, thus raising its water level. Approximately 400,000 gallons of ground water were treated during the month of December 1992. Effluent Tank 206 containing treated water is full; after analytical results are received the tank will be discharged directly to the South Interceptor Ditch (SID). Effluent Tank 205 is empty, and effluent Tank 207 is receiving treated ground water.

The total ground water collected to date is approximately 769,000 gallons; and total discharged treated ground water is approximately 602,500 gallons.

The Final Systems Operations (SO) Test and Optimization Test Report for operations of the 891 treatment facility is being finalized. Copies of the report will be distributed to DOE and the regulatory agencies. The Final Draft of the 891 Treatment Building Operations and Maintenance Manual is presently being reviewed.

DOE has requested additional work on the 881 Hillside. This work includes French drain collection well #CW 001 flow meter installation, Building 881 footing drain piping modifications, collection well piping modifications, and additional revegetation on the 881 Hillside including wetland expansion of tree planting. This requested work is added scope, but does not constitute a change in the scope of work at this time.

## Planned Work for January

Continue OU 1 IRA water treatment operations.

## Problems

Approximately 2,000 gallons of Hydrochloric Acid (HCL) were spilled in Building 891. The acid was contained within the HCL tanks containment berm. The spill was due to a design flow within the acid tank that caused a "siphoning" effect and emptied the contents of the tank. All but 55 gallons of the acid were recovered and will be reused in the treatment process.

Routine operations were commenced 2 days following the spill. The design flow was corrected on the HCL storage tanks.

## Open Items

None

## 2.2 OU 2 - 903 PAD, MOUND, AND EAST TRENCHES

The contamination at the 903 Pad and Mound areas is largely attributed to the storage in the 1950s and 1960s of waste drums that corroded over time, allowing hazardous and radioactive material to leak into the surrounding soil. Additional contamination may have resulted from wind dispersion during drum removal and soil movement activities. The East Trenches Area was used for disposal of Pu and uranium-contaminated waste and sanitary sewage sludge from 1954 to 1968. Two areas adjacent to the trenches were used for spray irrigation of sewage treatment plant effluent, some of which may have contaminants that were not removed by the treatment system.

An IM/IRA provides for surface water in source areas of contamination to be collected, treated, and discharged to the surface water drainage. Operation of a field-scale treatability unit for the South Walnut Creek drainage began in May 1991. The effectiveness of the treatment process will be evaluated at three locations: the entrance to the treatment facility, several points within the facility, and the discharge point. After completion of the field-scale treatability tests, the unit is anticipated to remain in service until the final remedial action is operational. The RI and FS are continuing in parallel with the IRA.

A second IM/IRA was established in late-1991. This Proposed Subsurface Investigation Interim Measure/Interim Remedial Action Plan/Environmental Assessment (IM/IRAP/EA) is north of Woman Creek and encompasses the 903 Pad, the Mound Area, and the East Trenches Area of OU 2. This IM/IRAP/EA identifies and evaluates interim remedial actions for removal of residual free-phase VOC contamination from three distinct subsurface environments at OU 2. Each of the proposed VOC-removal actions involve *in situ* vacuum-enhanced vapor extraction technology. The interim remedial actions are proposed for the collection of information that will aid in the selection and design of final remedial actions that address subsurface, residual free-phase VOC contamination at OU 2.

### 2.2.1 OU 2 Assessment

**Scope of Work Changes This Period**

None

**Technical Approach Changes This Period**

None

**IAG Milestone Accomplishments**

| | |
|---|---|
| Submit Draft Phase II RFI/RI Work Plan (Alluvial) | 21 Dec 89 |
| Submit Final Phase II RFI/RI Work Plan (Alluvial) | 12 Apr 90 |
| Submit Draft Phase II RFI/RI Work Plan (Bedrock) | 05 Feb 91 |
| Submit Final Phase II RFI/RI Work Plan (Bedrock) | 02 Jul 91 |
| Submit Subsurface Site I Draft Test Plan | 29 Oct 92 |

**December Work Activity Status**

On December 17, 1992, a meeting was held with the regulatory agencies to present the revised OU 2 RFI/RI schedule. The OU 2 Surficial Soil Sampling Plan for the Human Health Risk Assessment (HHRA) was discussed. A revised schedule was not presented to CDH as originally planned because it was decided to integrate schedules being presented by the IAG Cost, Schedules, Cost Amendment team.

The Draft Phase II RFI/RI Report will not include data from the Bedrock Program. However, the Final Phase II RFI/RI Report will include data from the Bedrock Program. The proposed revised submittal date of the Final Phase RFI/RI Report is February 15, 1994. This extension is necessary to incorporate data from the Bedrock Program. This date is subject to change by the regulatory agencies when formally approved.

A Surficial Soil Sampling TM was prepared for submittal to the regulatory agencies during the month of December. The TM addressed the collection and analysis of the surficial soils in OU 2 for the HHRA. As an alternative to the more costly method of going into the field and collecting additional samples, RFP examined historic germanium probe data to incorporate into the HHRA. It was hoped this alternative method of sample collection would result in a significant savings in costs and time. However, technical determinations concluded that the germanium probe data was not of sufficient quality for the HHRA. The regulatory agencies indicated that the approach being taken in the Surficial Soil Sampling Plan did not properly sample the entire lateral extent of the OU. The Surficial Soil Sampling TM is being revised to accommodate CDH comments and will be reviewed by DOE in January 1993.

Work continues on the OU 2 Exposure TM for the HHRA and the Phase II RFI/RI Report. The Exposure Scenario and Modeling TMs will be submitted a second time to the regulatory agencies by January 15, 1993.

Comments from the regulatory agencies and the Technical Review Group (TRG) on the Draft Pilot Test Plan, *In Situ* Volatilization Technology, Subsurface IM/IRA, and the Draft Soil Vapor Survey were received on November 30, 1992. The final version of this first test plan is scheduled for submittal to the regulatory agencies on January 12, 1993. Inspection and system start-up to begin pilot testing in the field is scheduled for September 15, 1993.

Engineering and tabletop review of the specification for the procurement of a Mobile Soil Vapor Extraction System were completed on December 14, 1992.

## Planned Work for January

<u>OU 2 Assessment</u>

1) DOE and EG&G will formally request an extension of the Draft and Final Phase II RFI/RI Report milestone.

2) The analyzing, compiling, and writing of Draft Phase II RFI/RI Report will continue. The Exposure and Modeling TMs for the HHRA will be submitted in draft form on January 15, 1993.

3) The Draft Surficial Soil Sampling TM will be completed and reviewed by DOE in January 1993, and then transmitted to the

regulatory agencies.

4) Procurement action on the surficial soil sample collection will be complete on January 29, 1993.

OU 2 Subsurface IM/IRA

1) The response to comments to the Draft Soil Vapor Work Plan and the Draft Pilot Test Plan, *In Situ* Volatilization Technology, Subsurface IM/IRA, will be finalized and delivered to the regulatory agencies on January 12, 1993.

2) Receive and technically evaluate proposals for the installation of the Mobile Vapor Extraction Unit. Evaluations will be complete on January 17, 1993.

3) Two procurement packages will be completed for the implementation of the Final Soil Vapor Survey and installation of injection wells.

**Problems**

DOE informally notified the regulatory agencies that the existing milestone date for the OU 2 Draft Phase II RFI/RI Report will not be met. The milestone will not be met because the Phase II RFI/RI Bedrock Work Plan was not implemented due to limited FY92 funding.

DOE is considering a formal request for an extension from the regulatory agencies of the Draft Phase II RFI/RI Report. The issue of including the Bedrock Field Program into the Draft or Final Report has not been resolved.

Surficial soil sample collection for the HHRA has become critical path for the Draft Phase II Report. EG&G Procurement is expediting a subcontract to alleviate potential schedule impacts.

**Open Items**

The remaining OU 2 IAG milestone schedule is still under review.

### 2.2.2 OU 2 Remediation

**Scope of Work Changes This Period**

None

**Technical Approach Changes This Period**

None

**IAG Milestone Accomplishments**

| | |
|---|---|
| Submit Draft Proposed IM/IRA Decision Document | 19 Jun 90 |
| Submit Proposed Plan IM/IRA Decision Document | 18 Sep 90 |
| Submit Draft Responsiveness Summary | 13 Dec 90 |
| Submit Final Responsiveness Summary and Final IM/IRA Decision Document | 11 Jan 91 |

| | |
|---|---|
| Field Treatability Test System Installation Complete | 10 May 91 |
| Begin Field Treatability Testing (Carbon System) | 13 May 91 |
| Submit Draft Treatability Test Report (Phase I GAC) | 01 Apr 92 |
| Complete IM/IRA Construction (radionuclides removal system) | 24 Apr 92 |
| Begin Field Treatability Testing (radionuclides removal system) | 27 Apr 92 |
| Submit Final Treatability Test Report (Phase I GAC) | 02 Jun 92 |

## December Work Activity Status

The FTU collected, treated, and discharged 779,190 gallons of surface water during the month of December. Operation has been normal and without problems. The winterizing of the SW132 collection facility that was completed on October 2, 1992, has proven effective.

The total number of drums of sludge stored at EM-1890 escalated to 21 by the end of December. EM-1890 is the RCRA OU 2 90-day accumulation area. Samples were obtained and sent to an offsite laboratory for analysis, and compliance with all RCRA requirements for labeling and storage was met. Operation has been normal and without problems, except for the incoming flow rate that has consistently been 3 times the normal dry weather flow rate experienced during most of the year because of warm temperatures and melting snow. Periodic increases in iron and/or lime feed rates are required to facilitate additional coagulation of solids to address the higher flow rate and/or turbidity resulting in above normal sludge production.

Thirteen drums of spent sodium hypochlorite (original microfilter cleaning solution) are currently being stored at the FTU in a cargo container. This liquid is expected to be sent to the 374 Evaporator for disposal.

The membrane filter was cleaned December 16, 1992. The pH in Tank 2 was reduced to between 10.5 and 11.0 to provide adequate solids concentration for membrane scouring.

Four Bulk Back Bins (BBB) were received. The BBBs are being used to contain spent granular activated carbon (GAC) currently stored in Cyclesorbs. A radionuclide contamination survey was done on each BBB prior to transport to RFP and the results showed no contamination. Each of the four bins were leak tested before any carbon was transferred. The first GAC transfer to a BBB was completed on December 4, 1992. The transfer went well and without incident. BBBs containing the GAC are being stored at EM-1890 and will be transported to RCRA Unit 18.03 as soon as all preparations have been completed.

| | |
|---|---|
| Planned Work for January | Transfer BBBs to Area 18.03.<br><br>Complete rehabilitation of generator. |
| Problems | None |
| Open Items | None |

## 2.3 OU 3 - OFFSITE AREAS

OU 3 can be divided into two categories based on two main activities. The IAG directs activities according to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This involves assessment of contamination in offsite areas also referred to as IHSS: Contamination of the Land Surface (IHSS 199), Great Western Reservoir (IHSS 200), Standley Lake (IHSS 201), and Mower Reservoir (IHSS 202). The second category responds to a 1985 out-of-court lawsuit settlement, McKay v. U.S., which directed that the surface soil contamination be remediated. Remedial activities in compliance with the Settlement Agreement (deep disc plowing) began in 1985. The disturbance resulting from remediation is being revegetated with mediocre success. The overall schedule for this activity is determined by the year-to-year success of the revegetation effort and requirements of the landowners.

### Scope of Work Changes This Period

None

### Technical Approach Changes This Period

None

### IAG Milestone Accomplishments

| | |
|---|---|
| Submit Draft Past Remedy Report | 26 Oct 90 |
| Submit Draft Historical Information/ Preliminary Health Risk Assessment Report | 09 Nov 90 |
| Submit Final Past Remedy Report | 02 Apr 91 |
| Submit Final Historical Information/ Preliminary Health Risk Assessment Report | 16 Apr 91 |
| Submit Draft Phase I RFI/RI Work Plan | 10 Jul 91 |
| Submit Final Phase I RFI/RI Work Plan | 06 Dec 91 |

### December Work Activity Status

Offsite landowners are still being contacted for surface soil sampling sites. Several landowners have denied access to their property. When access is denied, it is necessary to identify a new sampling location and to contact a new landowner for access to that property. Significant schedule impacts have resulted from the slow pace of obtaining Use Agreements from offsite landowners. Impacts to future IAG milestones and new schedules are being evaluated.

A meeting was held in December to coordinate the transfer of data from the Rocky Flats Environmental Database Systems (RFEDS) to the data management system being developed. The data management system will contain all OU 3 related field sampling information and provide efficient access for data analysis in preparation of the OU 3 Draft Phase I RFI/RI Report.

A draft sampling and analysis plan for the wind tunnel study is complete. The plan will be reviewed and incorporated into a TM to be submitted to the regulatory agencies for approval prior to starting the associated field work.

The CDH Health Advisory Board held a technical work session from December 15 - 17, 1992. DOE is concerned about the

Board's continued discussion of the collection of their own environmental samples.

DOE made an offer to CDH to split samples on OU 3 to allay CDH's concerns about data quality. CDH is considering the offer.

**Planned Work for January**

If weather permits, surface soil sampling will continue as well as work on the Air Monitoring Program.

**Problems**

Several offsite property owners have denied access to their property resulting in modifications to the sampling plan and delays to field work.

**Open Items**

None

## 2.4 OU 4 - SOLAR EVAPORATION PONDS

OU 4 is made-up of five solar evaporation ponds: 207A, 207B series (north, center, south), and 207C. Beginning in the late 1950s, the ponds were used to store and evaporate low-level radioactive process water containing high concentrations of nitrates and treated acidic wastes. The sludge and sediments that resulted from the process were periodically removed and disposed of at the Nevada Test Site.

As technology improved through the early 1960s and 1970s, the ponds were relined with various upgraded materials. However, leakage from the ponds into the soil and ground water was detected. Interceptor trenches were installed in 1971 to collect and recycle ground water contaminated by the ponds and to prevent natural seepage and pond leakage from entering North Walnut Creek. In 1981, these trenches were replaced by the current, larger, interceptor trench system that recycles approximately 4 million gallons of ground water a year back into the solar evaporation ponds.

No additional process water has been pumped into the ponds since 1983. The interceptor trench system collects and recycles ground water into the solar evaporation ponds continuously. Presently, only the 207B north solar evaporation pond receives contaminated ground water collected by the interceptor system. The ponds are RCRA interim status regulated units that are currently under closure. In order to proceed and characterize the level of contamination at the site, approximately 8 million gallons of excess liquid in the ponds must be removed. The removal of this liquid and the redirection and treatment of the ground water by the interceptor trench system are the focus of the final IM/IRA dated April 1992, which began construction in May 1992.

The April 1992 IM/IRA was developed as a regulatory agency requirement that was out of scope and not part of the tasks outlined in the IAG. DOE attempted to modify an existing permit for water removal and treatment for liquids in the solar ponds and ground water collected by the intercepter trench system, but the regulatory agencies rejected permit modification and required development of an IM/IRA to document operation and use of the proposed water treatment system. The development and implementation of this IM/IRA precedes the IAG scheduled Phase I RFI/ RI field work.

There is an IM/IRA scheduled in the IAG that will be completed after results are collected and analyzed from the Phase I RFI/RI field work. The first draft of the IAG IM/IRA is scheduled for delivery in April 1994.

### 2.4.1 OU 4 ASSESSMENT

| | | |
|---|---|---|
| Scope of Work Changes This Period | None | |
| Technical Approach Changes This Period | None | |
| IAG Milestone Accomplishments | Submit Draft Phase I RFI/RI Work Plan | 08 Jun 90 |
| | Submit Final Phase I RFI/RI Work Plan | 26 Nov 91 |
| December Work Activity Status | The OU 4 surficial soil sampling program has been completed outside the "radiation controlled area" (RCA). A total of 15 | |

surficial soil samples were collected, 5 in the Buffer Zone and 10 in the Protected Area (PA). The radiological/Field Instrument for Detection of Low-Energy Radiation (FIDLER) survey in the PA is approximately 95 percent complete.

Drilling activities began in the PA on December 14, 1992. Borehole number 44593, approximately 100 feet south of Pond 207 B South (Southeast corner), was drilled to a total depth of 14.2 feet. Ground water was detected at 10.7 feet and recovered to 5.4 feet 24 hours later. Bedrock was encountered at 11.7 feet. Borehole number 40893, directly north of B-series Ponds was drilled on December 15, 1992, to a total depth of 11.2 feet. Ground water was not detected at this borehole. Two samples were collected from boreholes 44593 and 40893 for analytical purposes. Both boreholes were grouted December 17-18, 1992. The staking of borehole locations in the Buffer Zone was initiated on December 18, 1992.

One of the objectives of drilling is to locate/identify the Arapaho "Sands" potentially below the Arapaho "Claystone" as a migratory pathway for contaminants. This geologic unit is expected to be 45 to 60 feet below grade.

A liner "integrity" assessment was conducted on Pond 207A to locate, photograph, and document breaches in the liner. The geophysical survey for Pond 207A was completed December 10, 1992, and was a prerequisite to drilling in the pond. The survey indicates the presence or absence of underground structures and was primarily conducted for health and safety purposes. Because of the clay material below Pond 207A, the "signal" from Ground Penetrating Radar (GPR) was not effective. However, the GPR was extremely beneficial in locating cracks in the liner. Consequently, the borehole locations for Pond 207A will be located utilizing this data. Due to recent heavy snows, water and ice in Pond 207A continues to accumulate rapidly, and this accumulation could impact the drilling schedule in Pond 207A in February 1993.

The drill rig for OU 4 was mobilized into the PA and began drilling on December 10, 1992. Sampling also started in the PA on December 10, 1992. The initial boreholes to be drilled are located at the perimeter of Pond 207C and Pond 207B Center. Solar Ponds Program Management has determined these two areas to be of higher priority than Pond 207A due to the toxicity associated with Pond 207C and the deterioration of the line in Pond 207B Center. The locations of the boreholes were "staked" on December 8, 1992. The drill rig was OSHA inspected on December 9, 1992. Radiological surveys and superficial soil sampling began on December 11, 1992, south of Pond 207B South.

A radiological survey for Pond 207A was completed during the week ending November 15, 1992. The conclusions from

the radiological report provide the appropriate criteria for personal protective equipment (PPE) and environmental characterization results. Mobilization of the geophysical survey for Pond 207 A started December 3, 1992. The geophysical survey was completed in Pond 207A by December 10, 1992. The geophysical survey is a prerequisite to drilling and sampling.

An Environmental Evaluation (EE) working document TM was completed and is currently being reviewed. Comments from EG&G were resolved from December 21, 1992, through December 28, 1992. The EE document was transmitted to DOE for review and comment by December 28, 1992.

**Planned Work for January**

Continue drilling and sampling activities.

Preparation of the EE Technical Memorandum.

Continue work on Vadose Zone Investigations.

Continue work on radiological surveys within OU 4.

**Problems**

The PA decontamination pad is not complete and operational. Consequently, a cost and schedule impact will be incurred.

**Open Items**

None

## 2.4.2 OU 4 REMEDIATION

**Scope of Work Changes This Period**

None

**Technical Approach Changes This Period**

None

**IAG Milestone Accomplishments**

None

**December Work Activity Status**

*Program Management* - A program status brief was presented to DOE/HQ on December 18, 1992. The revised work packages reflect the changed scope resulting from the DOE/HQ presentations. Three of the four major work packages for the program were revised to include more details on assumptions, milestones, and basis of estimates for costs. Draft versions of the work packages were completed December 11, 1992. However, due to the intensive planning effort underway to compress the Interceptor Trench System diversion schedule, the revised Water Management work package was not completed until December 11, 1992. The work packages will go through the plant change control process in time to take effect on February 1, 1993.

Solar Pond personnel drafted a schedule for all short-term corrective actions identified in the recent DOE/HQ's letter. The schedule includes preparing the supplemental funding request, implementing DOE Order 4700.1 (Project Management System), studying disposal options, and investigating safety considerations. The draft schedule shows these items being completed in April 1993.

A plan was developed for expediting the diversion of the Interceptor Trench System effluent to the Temporary Modular Storage Tanks and the Building 374 Evaporator. A working group composed of representatives from RFP performing and supporting organizations developed a detailed work breakdown structure (WBS) and draft schedule. The schedule is still being refined and expanded. Meanwhile, an Action Center has been established and personnel meet daily to track progress, expedite problem resolution, and streamline document sign-off.

*Water Management* - Two of the Temporary Modular Storage Tanks (TMSTs) have shown evidence of leakage after partial filling with potable water for testing and ballasting purposes. Water was observed in a portion of the leak detection systems, which collects liquid between the primary and secondary containment membranes of each tank. The current hypothesis holds that the source of the water is rainwater that became trapped between the primary containment membrane and a ultraviolet (UV) protection membrane during a storm earlier in the year. The hypothesis further holds that the primary containment membrane was breached, thus providing a path for the rainwater to the leak detection system. Failure of one or more seams in the membrane is the most likely cause of the breach.

This overall theory was developed from review of historical information, which documented the events that occurred during the storm and subsequent repair, and from observation of the behavior of the liquid in the leak detection system. Static water level in the system is significantly below the water level in the tank. This fact indicates that the leaking water reservoir is not the main tank contents, but rather the trapped rainwater that occupies a lower level.

The tank vendor was contacted, and a schedule for representatives of the vendor to arrive onsite to begin repair was developed. Repairs will commence during the week of January 4, 1993. The entire bottom of the UV membrane must be removed so that the breach in the primary membrane can be located and repaired. Additionally, all water presently in the tanks must be removed prior to execution of those actions. Assuming that no leaks develop in the third tank, water will be transferred from the leaking tanks to the functional one. Retention of water at the site will eliminate reexecution of the

filling operation that requires physical system modification. It is expected that repair of each tank will require a minimum of 1 week, but that schedule is subject to change due to general weather conditions and freezing temperatures.

According to the current schedule for expedited diversion of Interceptor Trench System effluent, repair of the TMSTs will have no negative impact on that effort unless it is not accomplished by February 10, 1993.

A frozen pipe incident report occurred when a pipe in the modular tanks froze. The pipe was filling the tanks with clean water prior to testing. This pipe was not full of static water during normal operations and, therefore, was not heat traced. However, the pipe is being reengineered to make it more serviceable in cold weather.

The number one engine, generator, vapor compression unit, and Multi-Effect, Multi-Stage (MEMS) Unit in Building 910 ran with water in them and produced acceptable low conductivity distillate.

Repairs of a blocked transfer line between the temporary modular storage tanks and Building 910 were completed. This allowed the resumption of domestic water into the tanks ballast and for use in subsequent testing. Conduct of this operation was expanded to 3 shifts to recover time lost during repairs and to operate more efficiently.

On December 7, 1992, repairs were conducted on the generator engine and were completed on December 22, 1992. Piping and electrical modifications were completed on the engine-generators. Hydrostatic tests were performed on all modified piping, and two of three systems passed. The third system failed because of a malfunctioning valve. The valve was removed from the system for rework. Checks of the inputs, outputs, and field wiring to the Programmable Logic Controller, which controls the equipment, were completed. These engines are

required to begin operational testing of the evaporators in Building 910.

Existing underground pipelines from Building 910 to nearby Tank 215D have failed repeated integrity tests. Pipelines are required between the building and the tank in order to utilize the tank as a storage location for distillate prior to its discharge into the plant raw water system. Since excavating and repairing the existing lines are expected to require significant time and funds, a preliminary design and estimate are being developed for new replacement lines.

## Planned Work for January

Commence repair of the leak in the east and west mod tanks. The vendor will begin investigation on January 11, 1993, and repairs will commence as soon as the evaluation is complete.

Complete the new pipe line from Building 910 to the Above-Ground Transfer Line (AGTL).

Complete the erection of Tent 12.

Prepare a detailed comprehensive schedule for all work necessary to bring Building 910 evaporators online.

## Problems

None

## Open Items

None

## 2.5 OU 5 - WOMAN CREEK

This activity encompasses assessment and remediation in the Woman Creek drainage of 10 IHSSs. These are: Original Landfill (IHSS 115); Ash Pits (IHSS 133.1 - 133.4); Incinerator (IHSS 133.5); Concrete Wash Pad (IHSS 133.6); Detention Ponds C-1 and C-2 (IHSS 142.10 and 142.11); Surface Disturbance (IHSS 209), southeast of Building 881. Two additional surface disturbances have been identified and are located, one south of the Ash Pits and a second west of IHSS 209. These last two sites have been included in the OU 5 Work Plan. Possible contamination in this OU was caused by landfill operations, storm water runoff into holding ponds, and ash-pit operations. Constituents in OU 5 are believed to include nitrates, plutonium, uranium, metals, beryllium, solvents, pesticides, oils, paints, and cleaners. Medias affected include soils, sediments, surface water, ground water, and air resuspension.

**Scope of Work Changes This Period**

None

**Technical Approach Changes This Period**

None

**IAG Milestone Accomplishments**

| | |
|---|---|
| Submit Draft Phase I RFI/RI Work Plan | 05 Apr 91 |
| Submit Final Phase I RFI/RI Work Plan | 30 Aug 91 |

**December Work Activity Status**

The geophysical survey at IHSS 133 was completed during the week ending December 18, 1992. The IHSS 115 geophysical data was processed, and the information was incorporated into Draft TM #3, Surface Soil Sampling at IHSS 115. The Draft TM #3 was delivered to the regulatory agencies on December 4, 1992. Comments were received from the regulatory agencies by December 18, 1992, and final approval of the TM by the regulatory agencies was received on December 28, 1992.

Eight borings for IHSS 115 were started on December 3, 1992. Six holes were completed by December 15, 1992. The first drill rig could not access all areas, so a second all-terrain vehicle (ATV) drill rig was brought on plantsite to replace it. The first rig was demobilized from the site. The ATV drill rig completed the two remaining holes at IHSS 115.

The closed circuit TV camera survey of the storm sewer in IHSS 115 was delayed because the required permits from Safeguards and Security (S&S) were not obtained. S&S is presently addressing this issue of welded-shut manhole covers in the 400 Area. The survey is now scheduled to start during the week ending January 8, 1993.

A preliminary draft of TM #5, Soil Gas Survey, including the results of the electromagnetic (EM) and magnetic surveys, was completed on December 8, 1992. TM #5 was reviewed, and it was noted that the 1,300 proposed soil gas sampling points far exceeded the 370 sampling points originally envisioned. The TM was returned for revisions, and TM #5 will be resubmitted

after revisions are completed.
Work on the High Purity Germanium (HPGe) survey at IHSS 133 was temporarily stopped. The tripod-mounted HPGe detectors in use were characterized and configured to fit onto the truck-mounted system. The system was ready for deployment by December 7, 1992, but could not be deployed because of snow on the ground.

The FIDLER survey of IHSS 209 cannot be accomplished because of snow on the ground. Work will be rescheduled as soon as the snow melts.

## Planned Work for January

Surficial soil sampling at IHSS 115 will begin during the week ending January 8, 1992.

## Problems

None

## Open Items

None

## 2.6 OU 6 - WALNUT CREEK

This activity encompasses assessment and remediation in the Walnut Creek Drainage of 21 IHSSs. They are the A-series Detention Ponds, Ponds A-1 through A-4 (IHSS 142.1 through 142.4 and 142.12); the B-series Detention Ponds, Ponds B-1 through B-5 (IHSS 142.5 through 142.9); the North, Pond, and South Area Spray Fields (IHSS 167.1, 167.2, and 167.3); the East Area Spray Field (IHSS 216.1), the Trenches A, B, and C (IHSS 166.1, 166.2, and 166.3); the Sludge Dispersal Area (IHSS 141); the Triangle Area (IHSS 165), and the Old Outfall Area (IHSS 143). One additional site, the Soil Dump Area (IHSS 156.2), was transferred from OU 14 to OU 6 in 1991. Two IHSSs, Property Utilization And Disposal Yard (IHSS 170) and Property Utilization and Disposal Container Storage Facilities (IHSS 174) have been transferred from OU 6 to OU 10. Thirteen ground water monitoring wells will be installed throughout OU 6 to monitor the alluvial aquifer. Five bedrock ground water monitoring wells will be installed in the vicinity of North Walnut Creek during the OU 6 remedial investigation. To characterize the bedrock aquifer in the vicinity of the A-series ponds, up to 9 additional bedrock ground water monitoring wells may be installed.

Sediment samples will be collected from the Walnut Creek drainage where existing data are insufficient to adequately characterize the sediments. Sediment sampling has been proposed along each stream segment on North and South Walnut Creeks where additional characterization is needed. Based on a review of the data collected at the existing locations along the OU 6 drainage, there is sufficient information about the sediments in many parts of OU 6; therefore, the sampling locations specified in the RFI/RI Work Plan have been reduced in those areas.

The surface soil sampling has been modified for the Triangle Area (IHSS 165) and the Old Outfall Area (IHSS 143) so that the surface soil samples specified in the IAG will be obtained from the original surface of these units. This will entail boring through the overlying fill material down to the original surface to collect samples.

**Scope of Work Changes This Period**

None

**Technical Approach Changes This Period**

None

**IAG Milestone Accomplishments**

| | |
|---|---|
| Submit Draft Phase I RFI/RI Work Plan | 19 Apr 91 |
| Submit Final Phase I RFI/RI Work Plan | 16 Sep 91 |

**December Work Activity Status**

In OU 6, the following field work was performed in December: 15 borings were completed in IHSS 166 and 156.2, 30 composite soil samples were collected, 2 monitoring wells were installed, and Soil Classification Surveys were completed in IHSS 165, 167.3, and 215.1.

Modifications were made to TM#1, Addendum to Final Phase I RFI/RI Work Plan, which addressed concerns that CDH had regarding sandy stratigraphy underlying the ponds. Existing data from borings and well logs were examined to determine if additional data was needed. TM #1 discusses the reduction in the scope of work for OU 6.

One of three soil classification surveys was located in the trenches of IHSS 166; the trenches contain fill dirt. Therefore, it was necessary to move the soil classification to IHSS 216.1 where undisturbed soil is located. The move to IHSSs 216.1 provides a better spatial distribution of soil classification surveys that will compliment the sitewide program. A Document Change Notice (DCN) is being prepared for the Work Plan.

## Planned Work for January

Field operations continue. Work to be completed in January includes boring in IHSSs 166, 165, 143; and monitoring wells in IHSSs 142, 141, 143, and 165.

## Problems

None

## Open Items

TM #1, Addendum to the Final Phase I RFI/RI Work Plan, is being reviewed by the agencies.

## 2.7 OU 7 - PRESENT LANDFILL

The Present Landfill - Operable Unit (OU) 7 is located north of the plant complex on the western edge of an unnamed tributary of North Walnut Creek and is comprised of two IHSSs. IHSS 114 includes landfill waste and leachate at the Present Landfill, soils beneath the landfill potentially contaminated with leachate, and sediments and water in the East Landfill Pond. IHSS 203 contains potentially contaminated soils at the Inactive Hazardous Waste Storage Area. A section of the Present Landfill located in the southwest corner was used between 1986 and 1987 as a temporary storage area for hazardous waste. The Present Landfill began operation in August of 1968 and was originally constructed to provide for disposal of RFP's nonradioactive and nonhazardous wastes. In September 1973, tritium was detected in leachate from the landfill. During the mid-1980s, extensive investigations were conducted on the waste streams (types) placed into the landfill, and consequently, hazardous wastes/hazardous constituents were identified. Although currently operating as a nonhazardous sanitary landfill, the facility is considered an inactive hazardous waste disposal unit undergoing RCRA closure.

### Scope of Work Changes This Period

The proposal included a limited nonintrusive investigation that may include Environmental Management (EM) and GPR techniques. The option of using cone penetrometer testing (CPT) to develop an estimate of pit depth is being investigated. The goal of this limited investigation is to develop a volume estimate of the asbestos in order to support risk assessment calculations. DOE concurred with this approach. This limited investigation constitutes new scope for OU 7, but it is necessary for the HHRA. CDH was consulted on this matter and concurs that this issue was overlooked during original project scoping.

### Technical Approach Changes This Period

None

### IAG Milestone Accomplishments

| | |
|---|---|
| Submit Draft Phase I RFI/RI Work Plan | 08 Jun 90 |
| Submit Final Phase I RFI/RI Work Plan | 28 Aug 91 |

### December Work Activity Status

The TM, *Exposure Scenario,* is at DOE for review. The TM for surficial soils sampling and asbestos pits investigations started DOE review on December 16, 1992. The proposal included a limited nonintrusive investigation that may include EM and GPR techniques. The option of using CPT to develop an estimate of pit depth is being investigated. The goal of this limited investigation is to develop a volume estimate of the asbestos in order to support risk assessment calculations. DOE concurred with this approach. This limited investigation constitutes new scope for OU 7, but it is necessary for the HHRA. CDH was consulted on this matter and concurs that this issue was overlooked during original project scoping. DOE and the regulatory agencies agree that full-scale intrusive characterization of the pits is not necessary at this time.

Surficial soils sampling continued around the East Landfill Pond. Sampling was completed (122 sites) on

December 18, 1992. The first deep monitoring well was completed. The drillers encountered Laramie sands at between 54 and 67 feet, and continuous unfractured claystone was found beneath the sands. Drilling continued for 5 feet beneath the sandy layer before the decision was made to complete the well at the sandy interval.

The CPT rig arrived onsite on December 8, 1992, and passed the OSHA inspection. The CPT rig is now working within the landfill, and personnel are working in Level C PPE until data can substantiate dropping back to modified Level D. The first penetration within the landfill tagged bedrock at 11.3 meters.

Two additional soil gas survey lines were sampled northeast of the original grid on IHSS 203. Trace amounts of dichloroethylene (DCE) and xylene were found and confirmed at some midpoints along the northeast lines of the original grids. The additional grid lines were designed to help determine the extent of the soil gases and to help ascertain whether the gases were a product of the landfill contents, as the northeast grid lines may extend across to the ground water diversion system and onto the landfill. All soil gas points were sampled, and data is being evaluated.

The first shallow monitoring well was completed. The accompanying deep well surface casing was installed. The third weathered bedrock well was eliminated from this site because weathered bedrock was not encountered. The decision to eliminate the weathered bedrock well in areas where the alluvium/bedrock contact does not demonstrate a clear weathered layer was approved by the regulatory agencies on December 5, 1992. Representatives of the regulatory agencies were shown the core from the shallow well and concurred with the observation that a distinct weathered bedrock layer did not exist at this site. A TM to document this decision is being prepared for the regulatory agencies.

## Planned Work for January

Drilling of monitoring wells will continue.

The TMs for surficial soil sampling and asbestos pits investigations will be sent to DOE/HQ for review and comments.

## Problems

None

## Open Items

None

## 2.8 OU 8 - 700 AREA

The 24 IHSSs that constitute OU 8 encompass separate sites inside and around the production area of the RFP. Contamination sources within the various IHSSs include above ground and underground tanks, equipment washing areas, and releases inside buildings that potentially affected areas outside the buildings. Contaminants from these sources may have been introduced into the environment through spills on the ground surface, underground leakage and infiltration, and in some cases through precipitation runoff. The chemical composition of the contaminants also varies widely between the IHSSs, ranging from low-level radioactive mixed wastes to nonradioactive organic and inorganic compounds.

During April 1992, 14 IHSSs were deleted from OU 8 and added to OU 9 as part of an IHSS realignment pursuant to Part 32, Paragraph 191 (Additional Work or Modification to Work) of the IAG. The IHSSs that were transferred to OU 9 include: 123.2-Valve Vault West of Building 707, 125-Holding Tank, 126.1 and 126.2-Out-of-Service Process Waste Tanks, 127-Low-Level Radioactive Waste Leak, 132-Radioactive Site - 700 Area Site #4, 146.1-146.6-Concrete Process Waste Tanks, 149-Effluent Pipe, 159-Radioactive Site Building 559. These IHSS changes were recommended by DOE in the OU 9 Phase I RFI/RI Work Plan approved by CDH and EPA in April 1992.

### Scope of Work Changes This Period

None

### Technical Approach Changes This Period

The OU Managers for the IA (OU 8, 9, 10, 12, 13, and 14) are working to consolidate the nonintrusive portions of their Work Plans. This integration has the potential for cost savings and schedule compression based on resource and contracting consolidation, permitting, mobilization/demobilization, and training.

This approach has been incorporated into the rebaselined work packages prepared in December. The integrated approach was provided to the DOE for its review on December 9, 1992.

### IAG Milestone Accomplishments

| | |
|---|---|
| Submit Draft Phase I RFI/RI Work Plan | 01 May 92 |
| Submit Final Phase I RFI/RI Work Plan | 01 Dec 92* |

**EPA/CDH approved an extension on this milestone from September 28, 1992, to December 1, 1992.*

### December Work Activity Status

The OU 8 Final Phase I RFI/RI Work Plan was delivered to the regulatory agencies on December 1, 1992, the extended IAG milestone date. Additionally, comment responsiveness summaries were delivered to DOE and the regulatory agencies on December 1, 1992. The regulatory agencies are scheduled to deliver their comments on the Work Plan to DOE on January 15, 1993.

### Planned Work for January

The Final Work Plan and comment Responsiveness Summary submitted on December 1, 1992, will be revised and new comments from DOE and the regulatory agencies will be incorporated.

| | |
|---|---|
| Problems | None |
| Open Items | The IA OU integration schedule for OUs 8, 9, 10, 12, 13, and 14 is being finalized. Also, logistics are being planned for contracting and for internal support. |

## 2.9 OU 9 - ORIGINAL PROCESS WASTE LINES

This activity involves characterizing a series of tanks and associated process waste lines. The Original Process Waste Lines (OPWL) consisted of a system of 57 designated pipe sections extending between 73 tanks and 24 buildings connected by 35,000 feet of buried pipeline that transferred process wastes from point of origin to onsite treatment plants. The system was placed into operation in 1952, and additions were made to the system through 1975. The original system was replaced over the 1975-1983 period by the new process waste system. Some tanks and lines from the original system have been incorporated into either the new process waste system or the fire water deluge collection system.

The original system is known to have transported or stored various aqueous process wastes containing low-level radioactive materials, nitrates, caustics, and acids. Small quantities of other liquids were also introduced in the system, including pickling liquor from foundry operations, medical decontamination fluids, miscellaneous laboratory liquids from Building 123, and laundry effluent from Buildings 730 and 778. The RFI/RI plan includes inspection and sampling of the OPWL tanks and pipelines which are accessible, and soil sampling to determine the extent of contamination in the vadose zone. The soil sampling will be performed by installing test pits and boring where known or suspected releases occurred, near pipe joints and valves, at approximately 200-foot intervals along the pipelines and by installing borings around the tanks that are outdoors. Soil characterization studies will determine the need for soil removal and/or treatment. The results of the RFI/RI will determine the need for interim and/or final remediation action.

During April 1992, 20 IHSSs were deleted from OUs 8, 10, 12, 13, and 15 and added to OU 9 as part of an IHSS realignment pursuant to Part 32, Paragraph 191 (Additional Work or Modification to Work) of the IAG. The IHSSs that were transferred to OU 9 include: 123.2-Valve Vault West of Building 707, 125-Holding Tank, 126.1 and 126.2-Out-of-Service Process Waste Tanks, 127-Low-Level Radioactive Waste Leak, 132-Radioactive Site - 700 Area Site #4, 146.1-146.6-Concrete Process Waste Tanks, 149-Effluent Pipe, 159-Radioactive Site Building 559, 124.1-124.3-Radioactive Liquid Waste Storage Tanks, 147.1-Process Waste Leaks/Maas Area, 122-Underground Concrete Tank, and 215-Tank T-40.

The above IHSSs all constitute part of the Original Process Waste Lines and will be investigated and remediated as such. These IHSS changes were recommended by DOE in the OU 9 Phase I RFI/RI Work Plan approved by CDH and EPA in April 1992.

### Scope of Work Changes This Period

None

### Technical Approach Changes This Period

The OU Managers for the IA (OU 8, 9, 10, 12, 13, and 14) are working to consolidate the nonintrusive portions of their Work Plans. This integration has the potential for cost savings and schedule compression based on resource and contracting consolidation, permitting, mobilization/demobilization, and training.

This approach has been incorporated into the rebaselined work packages prepared in December. The integrated approach was provided to the DOE for its review on December 9, 1992.

| | | |
|---|---|---|
| IAG Milestone Accomplishments | Submit Draft Phase I RFI/RI Work Plan | 08 Jun 90 |
| | Submit Final Phase I RFI/RI Work Plan | 26 Nov 91 |

**December Work Activity Status**

The draft of the FY93 funding revisions was completed. The revised schedule proposes that DOE submit the Draft TM #1, Field Sampling Plan, in the fourth quarter of FY93. This would allow OU 9 Phase I RFI/RI Stage 1 Sampling and Analysis to take place in FY94.

**Planned Work for January**

Write SOW for integrated approach to field studies for IA OUs including OU 9.

**Problems**

None

**Open Items**

None

## 2.10 OU 10 - OTHER OUTSIDE CLOSURES

OU 10 is made up of 15 IHSSs scattered throughout the plant that consist of various hazardous waste units. Six of the IHSSs are located in the PA, two are located in the Buffer Zone near the present landfill, and the remaining IHSSs are located near various buildings throughout the plant. The types of wastes identified at these sites range from pondcrete/saltcrete storage and drum storage to a utilization yard with waste spills. A Final Phase I RFI/RI Work Plan is currently in preparation. The primary components of the RFI/RI Work Plan for OU 10 will be a Field Study Plan (FSP), Baseline Risk Assessment Plan (BRAP), and an EE Work Plan. IRA is scheduled to begin in early 1998.

Three additional IHSSs were transferred from other OUs to OU 10 after the Draft RFI/RI Work Plan was completed in FY90. The Draft Work Plan was based on the draft IAG that was modified during final IAG negotiations. A contract modification was initiated to incorporate the three IHSSs into the Draft Work Plan and to perform general upgrades to the Plan.

During April 1992, IHSSs 124.1-124.3, the Radioactive Liquid Waste Storage Tanks were deleted from OU 10 and added to OU 9 as part of an IHSS realignment pursuant to Part 32, Paragraph 191 (Additional Work or Modification to Work) of the IAG. This change was recommended by DOE in the OU 9 Phase I RFI/RI Work Plan approved by CDH and EPA in April 1992.

**Scope of Work Changes This Period**

Only nonintrusive work as part of the integrated OU approach will be completed in FY93.

**Technical Approach Changes This Period**

The OU Managers for the IA (OU 8, 9, 10, 12, 13, and 14) are working to consolidate the nonintrusive portions of their Work Plans. This integration has the potential for cost savings and schedule compression based on resource and contracting consolidation, permitting, mobilization/demobilization, and training.

This approach has been incorporated into the rebaselined work packages prepared in December. The integrated approach was provided to the DOE for its review on December 9, 1992.

**IAG Milestone Accomplishments**

| | |
|---|---|
| Submit Draft Phase I RFI/RI Work Plan | 27 Nov 91 |
| Submit Final Phase I RFI/RI Work Plan | 01 May 92 |

**December Work Activity Status**

The OU 10 Final Phase I RFI/RI Work Plan was submitted to the regulatory agencies on May 1, 1992, and the final approval status is still pending.

**Planned Work for January**

Develop SOWs for work to be completed as part of the integrated OU approach.

**Problems**

Moving waste items out of IHSSs 170, 174, 176, and 210 continues to be a problem. All materials must be moved before any Phase I assessment can begin, per EPA/CDH.

**Open Items**

None

## 2.11 OU 11 - WEST SPRAY FIELD

The West Spray Field is located within the RFP Buffer Zone immediately west of the plant security area. The West Spray Field was in operation from April 1982 to October 1985. During operation, excess liquids from solar evaporation ponds 207-B North and Center (contaminated ground water in the vicinity of the ponds and treated sanitary sewage effluent) were pumped periodically to the West Spray Field for spray application. The spray field boundary covers an area of approximately 105.1 acres, 38.3 of which received direct application of hazardous waste. The RFI/RI process will entail field studies to investigate the presence or absence of hazardous constituents in soil and ground water.

| | | |
|---|---|---|
| Scope Changes This Period | None | |
| Technical Approach Changes This Period | None | |
| IAG Milestone Accomplishments | Submit Draft Phase I RFI/RI Work Plan<br>Submit Final Phase I RFI/RI Work Plan | 08 Jun 90<br>02 Jan 92 |
| December Work Activity Status | A draft outlining a proposal to rescope OU 11 field activities is at DOE for review. The proposed scope change requires funding shifts, but does not impact FY93 funding. CDH supported the planned proposal outline and agreed to participate with the rescoping. DOE approved the transmittal of the rescoping proposal outline. | |
| Planned Work for January | Development of a rescoping proposal will commence once written authorization is received from DOE. | |
| Problems | None | |
| Open Items | None | |

## 2.12 OU 12 - 400/800 AREA

The 400/800 Area involves assessment and remediation of the 11 IHSSs at the 400/800 Area, including: Multiple Solvent Spills at the West and South Loading Dock Areas (IHSSs 116.1 and 116.2); Fiberglassing Areas North and West of Building 664 (IHSSs 120.1 and 120.2); Cooling Tower Ponds - Northeast , South, and West of Building 460 (IHSSs 136.1, 136.2, and 136.3); Process Waste Leak - Owen Area (147.2); Radioactive Site - South Area (IHSS 157.2); Acid Leaks (2) (IHSS 187); and Multiple Acid Spills (IHSS 189).

Assessment will consist of preparing a Phase I RFI/RI Work plan, which will include both an EE and an HHRA. After implementation of this Work Plan, field work and sample analysis will be conducted, data will be analyzed, and the Phase I RI Report will be prepared. An FS to determine the best methods to remediate the area will be conducted as part of the assessment.

Remediation will consist of development and execution of a Remedial Action Plan based on results obtained during the assessment phase of the project. This process includes review and approval by EPA and CDH, followed by a Record of Decision (ROD), release to the public, and implementation of the plan.

During April 1992, IHSS 147.1 (the Process Waste Leaks-Maas Area) was deleted from OU 12 and added to OU 9 as part of an IHSS realignment pursuant to Part 32, Paragraph 191 (Additional Work or Modification to Work) of the IAG. This change was recommended by DOE in the OU 9 Phase I RFI/RI Work plan approved by CDH and EPA in April 1992.

### Scope of Work Changes This Period

Only nonintrusive work as part of the integrated OU approach will be completed in FY93.

### Technical Approach Changes This Period

The OU Managers for the IA (OU 8, 9, 10, 12, 13, and 14) are working to consolidate the nonintrusive portions of their Work Plans. This integration has the potential for cost savings and schedule compression based on resource and contracting consolidation, permitting, mobilization/demobilization, and training.

This approach has been incorporated into the rebaselined work packages prepared in December. The integrated approach was provided to the DOE for its review on December 9, 1992.

### IAG Milestone Accomplishments

| | |
|---|---|
| Submit Draft Phase I RFI/RI Work Plan | 08 May 92 |
| Submit Final Phase I RFI/RI Work plan | 05 Oct 92 |

### December Work Activity Status

The revised OU 12 Final Phase I RFI/RI Work Plan was submitted to DOE for review on December 8, 1992. All comments and concerns raised by the regulatory agencies were addressed and the Work Plan was submitted to the regulatory agencies on December 18, 1992. Final comment resolution and document preparation were completed, and the regulatory agencies are scheduled to grant final approval for the Work Plan in January 1993.

| | |
|---|---|
| Planned Work for January | Develop SOW for work to be completed as part of the integrated OU approach. |
| Problems | Contract work for field work is not expected to start until April 1993. |
| Open Items | None |

## 2.13 OU 13 - 100 AREA

Cleanup of the 100 Area involves the assessment and remediation of 14 IHSSs including: Chemical Storage - North, Middle, and South Sites (IHSSs 117.1, 117.2, and 117.3); Oil Burn Pit #1 (IHSS 128); Lithium Metal Destruction Site (IHSS 134); Waste Spills (IHSS 148); Fuel Oil Tank (IHSS 152); Radioactive Site - North Area (IHSS 157.1); Radioactive Site - Building 551 (IHSS 158); Waste Peroxide Drum Burial (IHSS 169); Solvent Burning Ground (IHSS 171); Valve Vault 12 (IHSS 186); Caustic Leak (IHSS 190); and the Hydrogen Peroxide Spill (IHSS 191), and the Scrap Metal Site (IHSS 197).

Assessment will consist of preparing a Phase I RFI/RI Work Plan, which will include both an EE and an HHRA. After implementation of this Work Plan, field work and sample analysis will be conducted, data will be analyzed, and the Phase I RI Report will be prepared. An FS to determine the best methods to remediate the area will be conducted as part of the assessment.

Remediation will consist of development and execution of a Remedial Action Plan based on results obtained during the assessment phase of the project. This process includes review and approval by EPA and CDH, followed by a ROD, release to the public, and implementation of the plan.

During April 1992, IHSS 122, the Underground Concrete Tank, was deleted from OU 13 and added to OU 9 as part of an IHSS realignment pursuant to Part 32, Paragraph 191 (Additional Work or Modification to Work) of the IAG. This change was recommended by DOE in the OU 9 Phase I RFI/RI Work Plan approved by CDH and EPA in April 1992.

### Scope of Work Changes This Period

IHSS 197, the Scrap Metal Sites, which is adjacent to IHSS 117.1 and 117.2, was transferred to OU 13 from OU 16.

### Technical Approach Changes This Period

The OU Managers for the IA (OU 8, 9, 10, 12, 13, and 14) are working to consolidate the nonintrusive portions of their Work Plans. This integration has the potential for cost savings and schedule compression based on resource and contracting consolidation, permitting, mobilization/demobilization, and training.

This approach has been incorporated into the rebaselined work packages prepared in December. The integrated approach was provided to the DOE for its review on December 9, 1992.

### IAG Milestone Accomplishments

| | |
|---|---|
| Submit Draft Phase I RFI/RI Work Plan | 15 May 92 |
| Submit Final Phase I RFI/ RI Work Plan | 12 Oct 92 |

### December Work Activity Status

The OU 13 Final Phase I RFI/RI Work Plan was submitted to the regulatory agencies on October 12, 1992, the IAG milestone date. The Work Plan was not approved pending the resolution of three issues: (1) settlement of the ARARs and Chemical Benchmark Issues; (2) receipt and approval of HPGe Standard Operating Procedures (SOPs) by the regulatory agencies; and (3) approval of a more comprehensive surficial soils component to the FSP.

The following is an update of these three issues:

1) A schedule and scope of work are being developed for the Settlement of ARARs/Chemical Benchmark Issues. Revision of the table is almost complete. A meeting was held on December 22, 1992, to submit the revised ARARs/Benchmark tables to the regulatory agencies.

2) Comment revisions to the HPGe SOP from the regulatory agencies are being incorporated, and a final revised SOP is nearing completion and will be submitted to the regulatory agencies in January.

3) The approval of a more comprehensive surficial soils component to the FSP is still under discussion. The Work Plan contains 54 surface soil samples, which is sufficient to do a BRA. However, CDH has requested that a surficial soil sample be taken at every fourth HPGe or soil gas sampling location. This would expand the proposed sampling effort by about 130 samples.

Nonintrusive field activities in OU 13 will begin in FY93. Nonintrusive activities include a visual inspection of the OU, surveying and grid location, HPGe, soil gas, ground water, and surficial soils sampling.

## Planned Work for January

Obtain the approval of the Work Plan.

Write SOW for integrated approach to field studies for IA OUs including OU 13.

## Problems

None

## Open Items

Settlement of the ARARs and Chemical Benchmark Issues.

Receipt and approval of HPGe SOPs by the regulatory agencies.

Approval of a more comprehensive surficial soils component to the FSP.

## 2.14 OU 14 - RADIOACTIVE SITES

Work at the "Radioactive Sites" involves the assessment and remediation of eight IHSSs, including: Radioactive Site - 700 Area Site #1 and Site #2 (IHSS 131); Radioactive Soil Burial - Building 334 Parking Lot and Soil Dump Area (IHSSs 156.1); Building 444 Parking Lot (IHSS 160) and Building 664 (IHSS 161); and Radioactive Site - 700 Area Site #2 (IHSS 162); and Radioactive Sites - 800 Area which includes the Concrete Slab, Building 886 Spills, and the Building 889 Storage Pad (IHSSs 164.1, 164.2, and 164.3). In 1991, one of two Soil Dump Area IHSSs (156.2) was deleted from OU 14 and added to OU 6.

Assessment will consist of preparing a Phase I RFI/RI Work Plan, which will include both an EE and an HHRA. After implementation of this Work Plan, field work and sample analysis will be conducted, data will be analyzed, and the Phase I RI Report will be prepared. An FS to determine the best methods to remediate the area will be conducted as a subsequent phase to the assessment phase.

Remediation will consist of development and execution of a Remedial Action Plan based on results obtained during the assessment phase and FS of the project. This process includes review and approval by EPA and CDH, followed by a ROD, release to the public, and implementation of the plan.

**Scope of Work Changes This Period**

None

**Technical Approach Changes This Period**

The OU Managers for the IA (OU 8, 9, 10, 12, 13, and 14) are working to consolidate the nonintrusive portions of their Work Plans. This integration has the potential for cost savings and schedule compression based on resource and contracting consolidation, permitting, mobilization/demobilization, and training.

This approach has been incorporated into the rebaselined work packages prepared in December. The integrated approach was provided to the DOE for its review on December 9, 1992.

**IAG Milestone Accomplishments**

| | |
|---|---|
| Submit Draft Phase I RFI/RI Work Plan | 26 Jun 92 |
| Submit Final Phase I RFI/RI Work Plan | 19 Oct 92 |

**December Work Activity Status**

The Final Phase I RFI/RI Work Plan was scheduled for approval by the regulatory agencies on November 17, 1992. DOE was notified by EPA that approval was being withheld until a scope and schedule for performing the IA/IRAP was agreed to by DOE and the regulatory agencies. Previously, the regulatory agencies confirmed that the Final Work Plan did adequately address comments on the Draft Work Plan.

**Planned Work for January**

None

**Problems**

None

**Open Items**

Approval of the Final Work Plan.

## 2.15 OU 15 - INSIDE BUILDING CLOSURES

OU 15 is composed of six IHSSs including: Building 881 Drum Storage Area; Building 865 Drum Storage Area; Building 883 Drum Storage Area; Unit 45, Original Uranium Chip Roaster; Unit 26, Building 881 Drum Storage; and Unit 32, Building 881 - Cyanide Bench Scale Treatment. OU 15 will undergo RCRA closure of all IHSSs. The six IHSSs are currently listed as RCRA interim status units. Closure Plans for the facilities were submitted to CDH in 1988 and again in 1989. The major activity proposed is characterization and decontamination, if applicable, of the concrete floors at the indoor facilities. Drums and dumpsters containing solids and liquids were stored at these facilities. Types of waste included oils, coolants, and solvents containing chlorinated hydrocarbons (RCRA F001 and F002 wastes) and waste paints and waste metals contaminated with solvents. Hazardous constituents include chlorinated solvents, beryllium, and uranium.

During April 1992, IHSS 215, Unit 55.13-Tank T-40, was deleted from OU 15 and added to OU 9 as part of an IHSS realignment pursuant to Part 32, Paragraph 191 (Additional Work or Modification to Work) of the IAG. This change was recommended by DOE in the OU 9 Phase I RFI/RI Work Plan approved by CDH and EPA in April 1992.

**Scope of Work Changes This Period**

None

**Technical Approach Changes This Period**

None

**IAG Milestone Accomplishments**

| | |
|---|---|
| Submit Draft Phase I RFI/RI Work Plan | 01 Jun 92 |
| Submit Final Phase I RFI/RI Work Plan | 26 Oct 92 |

**December Work Activity Status**

Comments from the regulatory agencies on the OU 15 Final Phase I RFI/RI Work Plan are currently being addressed. CDH has set January 15, 1993, as a tentative date for responses to comments and revisions to the OU 15 Final Work Plan to be completed.

According to the IAG Schedule, the Final Work Plan was to be approved by the regulatory agencies on November 24, 1992, and field work was to begin on November 25, 1992. Conditional approval (pending the resolution of regulatory agency comments) of the Work Plan and the regulatory agencies' comments were received from CDH on December 11, 1992.

**Planned Work for January**

Submitted the revised OU 15 Final Phase I RFI/RI Work Plan on or before January 15, 1993.

**Problems**

EPA's comments on the Work Plan indicated that DOE will ultimately need to issue a CERCLA decision document closing the unit. This comment is in conflict with CDH's comments on the Draft Work Plan. CDH's comments on the Draft Work Plan indicated that IHSS 212 (RCRA Unit 63) will be removed from the OU 15 schedule of the IAG and not be addressed in the Work Plan, and that Part VIII of the Mixed Residues Permit Modification for RFP will include closure plans for Unit

63, which specifically addresses radioactive contamination and cleanup. From EPA's comment it can be interpreted that implementation of the Work Plan and IAG Schedule are dependent upon approval of the RCRA Permit Modification by CDH. This could significantly impact the current IAG Schedule and result in missing the next IAG Milestone of August 1, 1994 (i.e., submittal of the Phase I RFI/RI Report for OU 15).

## Open Items

None

## 2.16 OU 16 - LOW PRIORITY SITES

This assessment activity consists of preparing a "No Further Action Justification Document" for 7 IHSSs, including: Solvent Spill, Antifreeze Discharge, Steam Condensate Leaks, Nickel Carbonyl Disposal, Water Treatment Plant Backwash Pond, and Scrap Metal Sites. In addition, the draft document must be reviewed, comments resolved, and the draft finalized.

**Scope of Work Changes This Period**

None

**Technical Approach Changes This Period**

None

**IAG Milestone Accomplishments**

| | |
|---|---|
| Submit Draft No Further Action Justification Document | 04 Mar 92 |
| Submit Final No Further Action Justification Document | 30 July 92 |

**December Work Activity Status**

The Final No Further Action Justification (NFAJ) Document for OU 16 is still pending approval despite an expected approval date of November 20, 1992. The period of performance for the contract expired December 31, 1992. An extension of the contract period is not anticipated. CDH was notified that the period of performance expired at the end of 1992. CDH responded by stating that due to CDH manpower constraints, its review would not be completed until January 1993.

Correspondence was received by DOE from EPA on the Final NFAJ Document. EPA acknowledged that the Final document adequately addressed comments on the Draft document. However, EPA takes the position that the close out of OU 16 can only be achieved by following the administrative process through to the Proposed Plan (PP) and the ROD.

**Planned Work for January**

None

**Problems**

None

**Open Items**

Approval of the NFAJ or a decision by DOE and the regulatory agencies on what work will be performed in this OU.

## 2.17 SITEWIDE ACTIVITIES

Sitewide activities include several tasks that encompass a wide variety of plans, procedures, reports, studies, and other activities required by the IAG and that apply to RFP environmental restoration activities in general. The activities include, but are not limited to, the HSP, a Sampling and Analysis Plan, a Plan for Prevention of Contaminant Dispersion, the Community Relations Plan, the Discharge Limits for Radionuclides Work Plan, Treatability Study deliverables, the Background Study Plan, Administrative Record, State Response (support for CDH oversight), Historical Release Report, Operations Management, Decontamination Facilities, Contractor yard support, ER Waste handling facilities, geologic characterization, hydrogeologic characterization, and ground water monitoring.

### Scope of Work Changes This Period

None

### Technical Approach Changes This Period

None

### IAG Milestone Accomplishments

| | |
|---|---|
| Submit Draft Background Study Report (Water) | 15 Dec 89 |
| Submit Draft Background Study Report (Soils) | 15 Dec 89 |
| Submit Draft Community Survey Plan | 23 Jan 90 |
| Submit Final Community Survey Plan | 22 Mar 90 |
| Submit Draft HSP | 15 Aug 90 |
| Submit Draft Quality Assurance Project Plan (QAPP) | 29 Aug 90 |
| Submit Draft SOPs | 29 Aug 90 |
| Submit Draft Plan for Prevention of Contaminant Dispersion (PPCD) | 19 Sep 90 |
| Submit Draft Treatability Study Plan | 21 Sep 90 |
| Submit Draft Community Relations Plan (CRP) | 01 Nov 90 |
| Submit Final HSP | 12 Nov 90 |
| Submit Revised Background Study Report | 21 Dec 90 |
| Submit Final CRP | 22 Jan 91 |
| Submit Final QAPP | 01 Mar 91 |
| Submit Final SOPs | 01 Mar 91 |
| Submit Draft Discharge Limits Radionuclides Plan (DLRP) | 05 Apr 91 |
| Submit CRP RS | 21 Jun 91 |
| Submit Final Treatability Study Plan | 03 Jun 91 |
| Submit Final PPCD | 22 Jul 91 |
| Submit Final DLRP | 16 Sep 91 |
| Submit Final PPCD and RS | 25 Nov 91 |
| Submit Draft Historical Release Report (HRR) | 08 Jan 92 |
| Submit RS for DLRP | 31 Jan 92 |
| Submit Final HRR | 03 Jun 92 |

### December Work Activity Status

**Public Meetings**

***December 8, 1992*** - Quarterly Environmental Restoration Public Information Meeting, 7:00 - 9:00 p.m. Topic: Overall ER Update, Specifics on OU 1 and OU 16, Denver Marriott West, 1717 Denver West-Marriott Blvd., Golden, CO.

*December 15, 1992* - RCRA Mod 12 Meeting, Denver Marriott West, 1717 Denver West-Marriott Blvd., Golden, CO.

*December 15, 1992* - Colorado Council on Rocky Flats - Economic Development, Louisville Recreation Center, 900 West Via Appia Way, Louisville, CO.

*December 16, 1992* - Health Advisory Panel Public Meeting, 6:00 p.m. - 8:00 p.m., Ramada Hotel, 8773 Yates Drive, Westminster, CO.

*December 16, 1992* - The Technical Review Group (TRG), 1:00 p.m. - 4:00 p.m., Westminster City Hall, 4800 West 92nd Avenue, Westminster, CO.

Sitewide Treatability Studies

*Ambersorb Seminar* - EG&G personnel attended a seminar on December 1, 1992, to present information related to a new commercial adsorbent called Ambersorb. As described in the seminar, the Ambersorb material presents several advantages when compared with GAC. The Ambersorb material has higher adsorption capacities, improved regeneration capabilities, and much better physical characteristics. ESE has requested more information on the Ambersorb materials and will consider adding a test of these materials to the current adsorption treatability study Work Plan.

*National Renewable Energy Laboratory (NREL) Request for Proposal for Solar Detoxification Demonstration Project* - A meeting was held between EG&G personnel and a subcontractor to EG&G to discuss the possibility of submitting a joint response to RFP from the NREL. The request for proposal is entitled, "Development of a Demonstration System for Solar Water Detoxification." The proposal calls for a cost sharing arrangement with a maximum contribution from NREL of 70% of the demonstration costs. The final proposals were due to NREL on December 30, 1992.

EG&G will be participating in a joint submittal with a subcontractor and a yet to be identified architecture/engineering (A/E) firm. If the proposal is one of those selected by NREL, the project should start sometime in the spring of 1993. Expected total cost of this proposal is $100K with RFP's contribution expected to be $10K to $15K. The sitewide work package is currently being revised, and the new revision will include funding to support this effort.

*Annual Report* - The Sitewide Treatability Studies Annual Report is an IAG milestone. The annual report includes a summary of the status of each of the sitewide projects, a literature review of new and emerging technologies, and a summary of other relevant environmental projects at RFP.

The first annual report is due to the regulatory agencies on March 8, 1993.

*Soil Washing Demonstration (NRT)* - A company has proposed to RFP a test of its proprietary soil washing process on a sample of RFP plutonium contaminated soil. The test will be carried out with no charge to DOE other than the costs connected to obtaining and shipping the soil sample and for someone from EG&G to witness the test work.

The soil sample to be used in the test work was received by the company on November 18, 1992. Initial work will consist of sample preparation (blending and splitting) and characterization of the particle size distribution of the sample. Test work began during the week ending December 18, 1992. The results of this work will be used to determine "optimal" testing conditions. The optimized test will be conducted in January.

*Status of Treatability Laboratory in Building 881* - EG&G Environmental Science and Engineering in conjunction with the Technology Development group at RFP is developing a treatability study laboratory. The laboratory will be used to conduct some of the treatability studies for the sitewide program. This laboratory was ready for experimental work sometime during December 1992. The initial testing and calibration of the uranium analyzer has been completed. The analyzer was calibrated at four different concentrations down to 20 parts per billion (ppb) (0.020 ug/ml). The uranium analyzer will be used in screening and quantifying the total uranium concentrations in the influent and effluent streams of the treatability studies.

*Sitewide Treatability Studies on Ion Exchange and Adsorption* - Ion Exchange and Adsorption are two of the technologies identified in the Final Sitewide Treatability Plan for further test work and evaluation to determine how effectively they might remove various contaminants from surface and ground water at RFP.

A copy of the 95 percent draft of the Work Plan is being reviewed by DOE. The review is scheduled for completion by January 5, 1993.

*Bioremediation* - The regulatory agencies have requested that bioremediation be considered as a potential technology for use at RFP. Since the topic is so broad EG&G is attempting to narrow the scope to items that are applicable to RFP. The literature review for bioremediation continues, and extensive computer searches are under evaluation for key articles and reviews.

*Oxidation/Reduction* - Oxidation/Reduction is one of the technologies identified in the Final Sitewide Treatability Plan

for further test work and evaluation to determine how effectively it might remove various contaminants from surface and ground water at RFP. Actual test work for this project is scheduled to begin in the spring of 1993.

*Colloid Polishing Filter Method (Techtran)* - This process uses a proprietary chemical complexing agent to remove heavy metals and/or radionuclides contaminants from waste water or ground water. The contaminants are removed from the water by precipitation and filtration. Ultimately, the contaminants are contained in a dried filter cake and the treated water is returned to the environment. Preliminary tests carried out at RFP in 1991 were favorable. EPA will support a site demonstration of this technology at RFP. EPA is currently preparing a Memorandum of Understanding (MOU) to transfer funding for this project to DOE.

*TRU/Clear* - TRU/Clear is the brand name for a proprietary precipitating agent based on the use of ferrite ions. Preliminary test work carried out at RFP has shown favorable results. Additional test work is planned for early 1993. All Procurement paperwork was completed by the end of December for this project so that test work can start in January.

*Observations on the Occurrence of Pu and Am in Ground and Surface Waters* - The regulatory agencies requested a report analyzing historical data from around RFP to determine if there is evidence for Pu and Am occurring in RFP waters. Meetings were held on December 1 and December 2, 1992, among DOE, EG&G, and the subcontractor to discuss this report.

*ICP-Mass Spectrometer* - The revised work package for the Sitewide Treatability Studies Program now contains funding to purchase and install an Inductively Coupled Plasma Mass Spectrometer (CP-MS) in the Treatability Laboratory in Building 881. The addition of this equipment will significantly increase the analytical capability of the laboratory and will result in lower analytical expenses and faster turnaround time for treatability studies conducted in the future.

## Planned Work for January

Continue work on the Annual Treatability Study Report, is due March 8, 1993.

Continue ongoing Community Relations Activities.

## Problems

None

## Open Items

None

# SECTION 3. ROUTINE ENVIRONMENTAL MONITORING

The following generalized sampling schedule for routine environmental monitoring is provided as requested in Section 210 of the IAG. Detailed quarterly monitoring schedules are prepared in advance and are available to EPA and CDH upon request from the EM Department and EG&G Rocky Flats, Inc. The schedules are lengthy; therefore, they are not reproduced here. An EPA- or State-authorized representative may make arrangements to observe field work and to obtain split or duplicate samples.

## 3.1 SURFACE WATER AND SEDIMENTS

- Each of the Surface Water Stations (approximately 20 stations) is sampled quarterly.
- Each of the Sediment Stations (approximately 10 stations) is sampled quarterly.
- Each surface water and sediment sample is analyzed for the following parameters:

| | |
|---|---|
| CLP TCL VOAs | Metals CLP TAL and Non-TAL |
| Field Parameters | Specific Conductivity |
| Dissolved Oxygen | Major Anions |
| Radionuclides | Temperature |
| TDS/TSS | pH |
| Nutrients | |

## 3.2 SOILS

- Each of the Soil Stations (located at 1- and 2-mile radii from the plant center) is sampled annually.
- Each soil sample is analyzed for Pu and Am.

## 3.3 GROUND WATER

A total of 410 ground water stations are sampled quarterly; this includes alluvial wells, bedrock wells, and pre-1986 wells. Approximately one-third of the wells are monitored monthly for water levels.

Each ground water sample is analyzed for CLP, TCL, VOAs, TAL, and metals, as well as the following parameters:

| Radiochemical Parameters | Inorganic Parameters | Field Parameters |
|---|---|---|
| Gross Alpha | Nitrate/Nitrite | DO |
| Gross Beta | Total Phosphorous | Specific Conductivity |
| Plutonium | Ortho-Phosphate | Temperature |
| Americium | Ammonia | Turbidity |
| Strontium | TDS | pH |
| Tritium | Fluorine | |
| Uranium | Sulfate | |
| Cesium | Carbonate | |
| | Bicarbonate | |

| Radiochemical Parameters | Inorganic Parameters | Field Parameters |
|---|---|---|
| | TSS | |
| | Total CLP Metals & additional metals | |
| | Dissolved CLP & additional metals | |
| | Cyanide | |
| | CLP Volatile Organic Compounds | |

# SECTION 4. CONTRACTOR/SUBCONTRACTOR IDENTIFICATION

Contractors and subcontractors being used on the RFP ER Program and the work they are performing are identified on the following list as required by paragraph 13 of the IAG.

| OU | Project | Subcontractor | Sub-Subcontractor | Work Description | Start Date |
|---|---|---|---|---|---|
| 1 | Assessment | Ebasco | Dames & Moore<br>Stoller Corp. | OU 1 RFI/RI field work (drilling, well development/ completion, sampling) and RI report and CMS/FS report | Apr 91 |
| 1 | Remediation | Bruner | | OU 1 IRA ion exchange system | Feb 91 |
| 1 | Remediation | E.T. LaFore | | Installation of Phase II-A treatment system equipment for OU 1 IRA | Jun 91 |
| 1 | Remediation | IT Corporation | CH2MHill/OMT | B-891 Treatment System Operations | |
| 1 | Remediation | Jennison | | Construct Phase II-B French drain at OU 1 IRA | Aug 91 |
| 1 | Remediation | P.S.I. | | OU 1 IRA UV/Peroxide System | Aug 91 |
| 2 | Assessment | Woodward-Clyde | Ogden | OU 2 RFI/RI Work Plan (alluvial and bedrock) and RI field work (drilling, well completion/development) | Sep 90 |
| 2 | Assessment | Ebasco | S.M. Stoller Corp. | Environmental Evaluation | Feb 91 |
| 2 | Remediation | Stearns Rogers | | Performance Specification for Chemical precipitation/membrane/filtration system for South Walnut Creek Phase of OU 2 IRA | Jun 91 |
| 2 | Remediation | TBD | | Mfg/Install chemical precipitation/ filtration unit for South Walnut Creek Phase of OU 2 IRA | Dec 91 |
| 3 | Assessment | IT Corporation | CH2M Hill | OU 3 Field Work and RI Report | Apr 92 |
| 3 | Assessment | IT Corporation | USGS | OU 3 Reservoir Sediment Sampling and Report | Aug 92 |
| 3 | Assessment | MRI | | Wind Tunnel/Soil Resuspension Study | Aug 92 |
| 4 | Assessment | Applied Environment | | Implement the Phase I RFI/RI Work Plan, includes drilling, sampling radiation surveys, etc. | Aug 92 |

| OU | Project | Subcontractor | Sub-Subcontractor | Work Description | Start Date |
|---|---|---|---|---|---|
| 5 | Assessment | ASI | Dames & Moore<br>Blackhawk Geoscience<br>Walsh & Assoc.<br>Fugro Geosciences<br>Lagne Envir. Service<br>Utility Mgmt. Service<br>S.M. Stoller<br>Adv. Terra Testing | Implementation of OU 5 Work Plan (excluding EE) | Jun 92 |
| 5 | Assessment | S.M. Stoller | | Implementation of EE section of OU 5 Work Plan | Sep 92 |
| 6 | Assessment | Woodward Clyde | Lane, Ogden Geo Environmental | OU 6 RFI/RI Work Plan and Quality Assurance Addendum | Feb 90 |
| 6 | Assessment | S.M. Stoller | | EE | Sep 92 |
| 7 | Assessment | S.M. Stoller | Walsh & Assoc. | OU 7 RFI/RI Work Plan including EE Plan and QA Addendum | Apr 90 |
| 11 | Assessment | | | OU 11 RFI/RI Work Plan including EE Plan and QA Addendum | Oct. 91 |
| 15 | Assessment | S.M. Stoller | | OU 15 RFI/RI Work Plan | |
| SW | HRR | IT Corporation | Doty & Assoc. | Prepare HRR | Feb 91 |
| SW | PCB Assess. | Ebasco | Stoller Corporation | Prepare PCB Assessment Report | Jan 92 |
| SW | Adm. Record | QuantaLex | | Maintain IAG Adminstrative Record | Oct 90 |
| SW | Geo. Char. | ASI | | Geologic Characterization, Data Base, and graphics | Feb 90 |
| SW | Monitoring | IT Corporation | | Analytical Services for ground water, surface water, and sediment | Jul 90 |
| SW | PPCD | Ebasco | | PPCD | Jun 90 |
| SW | QA | SAIC | | Develop and implement QA program and field operations oversight | Dec 90 |
| PM | Support | Ebasco | Stoller Corporation | Program Management Support | Feb 90 |

# ACRONYMS

| | |
|---|---|
| AGTL | Above Ground Transfer Line |
| ARAR | Applicable or Relevant and Appropriate Requirements |
| BBB | Bulk Back Bins |
| BOA | Basic Ordering Agreement |
| BRAP | Baseline Risk Assessment Plan |
| CAD | Corrective Active Decision |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| CLP | Contract Laboratory Program |
| CMS | Corrective Measures Study |
| CPT | Cone Penetrometer Testing |
| CRP | Community Relations Plan |
| DCN | Document Change Notice |
| D&D | Decontamination and Disposition |
| DLRP | Discharge Limits Radionuclides Plan |
| DOE | Department of Energy |
| E&WM | Environmental and Waste Management |
| EA | Environmental Assessment |
| EE | Environmental Evaluation |
| EM | Environmental Management |
| EPA | Environmental Protection Agency |
| ER | Environmental Restoration |
| FPM | Facilities Project Management |
| FS | Feasibility Study |
| FSP | Field Study Plan |
| FTU | Field Treatability Unit |
| GAC | Granular Activated Carbon |
| gpm | Gallons per minute |
| GPR | Ground Penetrating Radar |
| HHRA | Human Health Risk Assessment |
| HPGe | High Purity Germanium Survey |
| HRR | Historical Release Report |
| HSP | Health and Safety Plan |
| IAG | Interagency Agreement |
| IHSS | Individual Hazardous Substance Site |
| IM | Interim Measure |
| IRA | Interim Remedial Action |
| IRAP | Interim Remedial Action Plan |
| ITS | Interceptor Trench System |
| IWCP | Integrated Work Control Package |
| LL | Low-level |
| MOU | Memorandum Of Understanding |
| MTS | Master Task Subcontract |
| NEPA | National Environmental Policy Act |
| NTS | Nevada Test Site |
| OPWL | Original Process Waste Line |
| OU | Operable Unit |
| PA | Protected Area |
| pCi/g | Picocuries per gram |
| PP | Proposed Plan |

| | |
|---|---|
| PPCD | Plan for Prevention of Contaminant Dispersion |
| PPE | Personal Protective Equipment |
| QA | Quality Assurance |
| QAPP | Quality Assurance Project Plan |
| RCA | Residue Compliance Agreement |
| RCRA | Resource Conservation and Recovery Act |
| RFEDS | Rocky Flats Environmental Database System |
| RFI | RCRA Facilities Investigation |
| RFP | Rocky Flats Plant |
| RI | Remedial Investigation |
| ROD | Record of Decision |
| RS | Responsiveness Summary |
| SID | South Intercepter Ditch |
| SO | Systems Operation |
| SOP | Standard Operating Procedure |
| SOW | Statement of Work |
| SP | Solar Ponds |
| S&S | Safeguards & Security |
| TAL | Target Analyte List |
| TCL | Target Compound List |
| TDS | Total Dissolved Solids |
| TM | Technical Memorandum |
| TMST | Temporary Modular Storage Tank |
| TRG | Technical Review Group |
| TRU | Transuranic |
| TSS | Total Suspended Solids |
| VOA | Volatile Organic Analyte |
| VOC | Volatile Organic Compound |
| WBS | Work Breakdown Structure |
| WS | Waste Storage |